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ABSTRACT

Developed as an aid to those responsible for facility planning in vocational education, this document contains the "School Building/Site Assessment Packet" and its instruction manual. The instruction manual provides background information, describes meanings, and presents ideas that are pertinent to consider and understand when using the assessment packet. The assessment packet is designed to provide local and state agencies with important and essential information for use in vocational education facility planning. The instrumentation has been field tested and validated to assess the extent of availability, nature of quality, range of acceptance, and potential of convertability of facilities and fixed equipment for vocational education at the secondary level. (A full report on the development and validation of the instruments is available in ERIC --see note.) (BM)

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INSTRUCTION MANUAL

SCHOOL BUILDING/SITE ASSESSMENT PACKET for VOCATIONAL EDUCATION FACILITIES

June, 1978

CE 020 202

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PREFACE

The School Building/Site Assessment Packet for Vocational Education Facilities is one of the products of the research project "Evaluating and Assessing the Status of Vocational Education Facilities in Indiana." This project was funded through the Indiana State Advisory Council for Vocational Education. One purpose of the project was to develop, field test, and validate instrumentation that could be used in a reliable way to assess the extent of availability, nature of quality, range of acceptance, and potential of convertability of facilities and fixed equipment for vocational education at the secondary school level. The instrumentation is designed for computer compatibility with existing systems.

The assessment packet is developed as an aid to those responsible for facility planning in vocational education. It aims to provide local and state agencies with important and essential information to help them make sound decisions in facility planning. Hopefully, the application of the assessment packet will lead to functional facilities in which to conduct vocational programs at the secondary school level whether the facility be part of a comprehensive high school, be an area vocational school, or be some other arrangement.

The Instruction Manual provides background information, describes meanings, and presents ideas that are pertinent to consider and understand when using the School Building/Site Assessment Packet.

Norbert J. Nelson

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EVALUATION AND ASSESSMENT

In a changing and viable society the need to judge and propose constantly confronts planners and decision makers. Meaningful and relevant data that help establish conditions or project needs are important to those with planning and decision-making responsibilities. Data collection instruments that provide usable input can lead to effective and efficient decisions and plans. Operational meanings are needed for evaluation and assessment. Potential purpose and use of data gathering instruments needs to be understood.

Operationalizing Evaluations and Assessments

Meanings need to be clarified in relation to applying processes and procedures that produce results that can be communicated in a discernible way. If a facility is judged either adequate or inadequate, there must be understood answers to this question: For what and why? It may be, for example, a space is inadequate for a Machine Shop program because the space is narrow, has a low ceiling, has only 110v. power, and so on. An assessment was necessary before a question like the one given could be answered. This means that someone made an appraisal of the space. If a person doing the assessment is knowledgeable and the instrument that records measurements, observations, and judgments is a sound and valid one, there will be confidence in the answer. Equally knowledgeable persons should be able to apply the assessment instrument with similar results. Accurate assessments lead to accurate evaluations. An evaluation ascertains value and fixes worth. For instance, in the example given, a follow-up question might be "Can the space be made adequate for Machine Shop?" The person making the evaluation may conclude the cost to enlarge space dimensions (l x w x h) would be prohibitive. This is an evaluative statement.

The application of the assessment packets will require considerable study

and some preparation if the persons doing the assessing and evaluating are to do competent work. Only then will these persons provide recorded data that can be accurately interpreted by planners and decision makers.

Purposes and Uses of Building/Site Assessment Packet

It may be the aim of applying the Building/Site Assessment Packet is to evaluate the status of existing facilities for purposes of planning a remodeling or renovation program. Or it may be that the intent is to determine whether the available facilities being used for general type occupational oriented courses (e.g., industrial arts) can be adapted to vocational type courses (e.g., trade and industrial). These instruments might be used to help determine whether a facility is worth saving or whether a new facility is needed. Then again, the instruments may be given to school officials and planners who are identifying the elements that ought be considered in buildings and sites for vocational programs. Another purpose might be to have a computer file and record of a facility just as files and records are kept on student populations, finances, and personnel. Careful application of the packets may also provide records of capital assets for local, regional, and state agencies to use in strategic planning with community groups and legislative committees. In other words, there are many purposes for which the packet might prove to be useful.

The goal in using the building/site assessment packet should be to upgrade physical facilities to better accommodate vocational programs. The intent ought be to provide data and information which can lead to improving and facilitating program developments and operations in vocational education.

ASSISTANCE IN PLANNING

In any aspect of facility planning, it is important to be thoroughly familiar with procedures and ideas. The time spent on pre-planning will pay dividends. In applying a set of instruments such as those included in the School Building/Site Assessment Packet, good background study will prove helpful. Summarized in the two sections that follow is information on sources of assistance in planning.

Principal Sources of Assistance in Planning

The two primary governmental agencies to provide assistance in planning educational facilities are the Indiana Department of Public Instruction and the State Board of Vocational and Technical Education. The Department of Public Instruction includes two divisions that are important sources of information about vocational facilities: Schoolhouse Planning and Vocational Education. Available through these offices are building and site standards for Indiana (Schoolhouse Planning) and guidelines for planning vocational facilities (Vocational Education). The State Board of Vocational and Technical Education has responsibilities for governing functions of programs in Indiana that are classified officially as vocational. These programs are operated either as selected vocational programs in comprehensive high schools, vocational-technical high schools, or area vocational schools. The vocational and technical education agency is a good source of information on regulations and standards that need to be met if a program is to be classified as vocational.

In Indiana, public school facility plans need approvals from the DPI Division of Schoolhouse planning, the Administrative Building Council, the Department of Health, the Office of the Fire Marshall, and the State Board of Accounts. Each of these agencies have specific tasks related to facility plans.

Other Sources of Assistance in Planning

There are a variety of governmental and non-governmental agencies that can provide information and assistance in facilities planning. The sources identified are not intended to be exhaustive.

In addition to State of Indiana governmental sources, there are Federal sources that provide data and guidelines for planning. In the U.S. Office of Education (Department of Health, Education, and Welfare) there are several bureaus that can provide assistance (e.g., Bureau of Education for the Handicapped, Bureau of Elementary and Secondary Education, Bureau of Occupational and Adult Education). Then, too, in HEW is the Office of Civil Rights. This office monitors several sections of the Vocational-Rehabilitation Act of 1973. The National Institute of Education (NIE) also may provide helpful information. An example of this information is the Facilities Handbook for Career Education.[1] Another federal agency known as OSHA (Occupational Safety and Health Adm) provides safety check lists, guides, code information and the like that are pertinent considerations in planning vocational facilities.

Then, too, there are special associations, councils, and societies that may provide planning information that will be helpful. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE) have documents available that identify standards for energy conservation in building designs. The American Institute of Architects (AIA) has pamphlets available on many facets of building construction. The Educational Facilities Laboratory (EFL) is a non-profit, foundation supported agency that conducts studies relating to buildings and sites and publishes many monographs, bulletins, and reports. The Council of Educational Facilities Planners, International (CEFP) comprised

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[1] Gill, W. B. and Like, A. W. Facilities Handbook for Career Education. NIE Papers in Education and Work No. 2 (Washington, D.C.: NIE, U.S. Office of Education, October 1976) 230 pages

of a variety of different type of persons with school facility knowledge (e.g., educational planners, architects, administrators, directors, professors) is an information source that could be helpful in planning. Finally, there are professional associations (e.g., American Council of Industrial Arts Supervisors) that provide information about facilities in specific areas.

ACCOMMODATION OF THE HANDICAPPED

The nature of the design and the type construction of a vocational facility or other public building can greatly affect the ability of handicapped indiviiuals to use the services of that building. Such features as restrooms, stairways, and entrances may effectively serve as barriers to the handicapped. In addition, exterior features of site planning, such as curbs, may also bar individuals from access.

In recent years, since the passage of the Architectural Barriers Act of 1968 (U.S. Code, Title 42, Section 4151 through 4156, Public Law 90-480), a number of state and federal laws have been passed which attempt to eliminate architectural barriers in new buildings. That is, federal statutes have been passed which require all publicly financed buildings or facilities to be accessible to handicapped individuals. Further, section 503 of the Vocational Rehabilitation Act of 1973 mandates that programs which are federally funded must be accessible and that a plan must be prepared which will not only provide for accessibility in new buildings but which will renovate many existing facilities for such accessibility.

Presently there are estimated to be between 18 and 20 million people in the United States with a physical handicap requiring that specially designed architecture of some kind is necessary to accommodate daily living routines.[2]

Within this population (nearly the size of the State of New York) there is an unemployment rate of approximately 64 percent. As a consequence of such handicaps, individuals are turning to vocational training institutions and institutions of continued or higher education for training to enhance their abilities for functioning in the world of work.

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[2] Cotler, Stephen R. and DeGraff, Alfred H., Architectural Accessibility for the Disabled of College Campuses (New York: State University Construction Fund, 1976)

Categories of Handicapped

While accommodations must be made for the more obvious physically handicapped, accessibility standards also provide for the removal of architectural barrier to other handicapping conditions. Generally considered categories of disability include (a) Non-ambulatory disabilities: Those disabilities which, regardless of cause, confine the individual to wheelchair mobility; (b) Semi-ambulatory disabilities: These include any type of disability which causes the individual to be not secure in walking or to walk with great difficulty. This category includes people with crutches, braces, amputees, etc.; (c) Coordination disabilities: These include impairments of muscle control; (d) Sight disabilities: These disabilities affect sight totally or partially; (e) Hearing disabilities: The inability to to communicate or hear warning signals is the primary danger; and (f) Aging disabilities: Disabilities due to manifestations of the aging process which reduce mobility, flexibility, coordination, and perception.

It should be noted that virtually all individuals may, at some time in their lives be subject to such handicapping conditions, even if only temporarily. In addition, such handicapping conditions vary greatly in severity, from the near totally involved to the less seriously affected. It is necessary then to design facilities which will take into account a "realistic degree" of independence. That is, no architectural arrangement would facilitate access for the totally immobile. Thus, even with accommodation, some more severely handicapped persons will confront architectural barriers. Hopefully, however, standards devised will consider a reasonable level of accommodation as weighed against a realistic degree of independence.

Facility Design for the Handicapped

The major legislation affecting facility design for the handicapped is section 503 and 504 of the Vocational Rehabilitation Act of 1973. Rules and

Regulations for that act were only signed into law in 1977. It is important to understand that, although the act anticipates non-discrimination on the basis of handicap in all federally funded programs and facilities, this does not mean that every building and every aspect of every building must be made barrier-free. Certain facility modifications in conjunction with schedule changes, special assistants or aides, and other methods which allow access are also permissible.

The criteria used to determine whether accessibility is achieved are those devised by the American National Standards Institues (ANSI A117.1 - 1961, R 1971). These standards are detailed and spell out exact minimums in feet and inches.

In general, accessibility concerns both site (exterior) characteristics and structural (interior) characteristics. The more obvious exterior accommodations include, but are not limited to, the following: (a) Parking access: The issue here is convenience. Parking spaces should be located as close to accessible entrances as possible. Such spaces should be reserved and clearly marked. (b) Curb cuts and ramps: Anything that abruptly rises or drops, such as steps or curbs, is a barrier to those with ambulatory problems. ANSI Standards indicate degree of rise for ramps where there are stairs and width of cuts for curbs. (c) Landscaping: Attention should be given to landscaping which is aesthetic but does not inhibit access to the handicapped. (d) Exterior entrances: The issue here is that the accessible entrances should provide for as many kinds of problems as possible. Automatic door openers, doors opening away from users, sufficient space at the top of ramps, sufficient width, textural cues for the blind, and other considerations are important to include.

Once inside the building, the major areas of concern have to do with ability to move throughout the building, ability to take advantage of the facilities which the building offers, and the safety of the handicapped individual. Thus, multiple story buildings will need an elevator, corridors which are of adequate width, and egress and ingress accommodations which facilitate mobility problems. In addition,

drinking fountains, lavatory facilities, and classroom space and equipment installation will need to provide for such limitations. Elevators, for example, will need to be provided with braille indicators to facilitate their use by the blind. Finally, safety must be an overriding concern.

The Access Problem

Ultimately, barrier free considerations may appear costly when viewed on a per user basis, since some schools will have few, if any, such handicapped individuals at the time of renovation or initial construction. It is important to note, however, that failure to provide for such concerns serves as an effective barrier to the handicapped and, thus, denies them access and use of these facilities. Few would argue that the handicapped should be denied such access. Finally, it is important to remember that all individuals are susceptible to handicapping limitations, even if only as temporary conditions associated with post-surgical recovery, broken bones and the consequent need for crutches, or other problems encountered in everyday living. As such, then accessibility affects us all.

ENERGY CONSERVATION

It is of the utmost importance that energy conservation be considered in the assessment of facilities to accommodate vocational-technical education programs. The accessibility and adequacy of the energy source or sources is a high priority consideration in the use of existing facilities and in building, remodeling, and renovating facilities. The selection of facility components (e.g., spatial, thermal, visual, and structural) that lead to energy efficiency is a necessity. As both a scarce and increasingly expensive resource, good management of energy is essential. When assessing facilities attention needs to be directed toward the building envelope to evaluate thermal resistance and air leakage, and, in addition, to evaluate the performance of the electrical, mechanical and other service systems and equipment with regard to efficiency and effectiveness. Energy conservation is the product of providing and maintaining good physical resources that are adequately managed.

Structural Environment

The building envelope is the fabrication treatments (ceilings, floors, and walls) which function to resist and transmit energy to and from the exterior and various interiors. In facility assessment, surfaces and openings (e.g., cracks, pipes, louvers) that provide unwanted air leakage should be checked. Inspected too, should be windows and doors to determine if they fit and work well. Large single pane window areas lack much thermal resistance and their need should be analyzed. Air leakage treatments such as the vestibule and storm sash help reduce energy losses. Their appropriate provision should be checked. The status of building insulation (e.g., roof deck, walls, and under floors) should be inspected to assess adequacy. Then, too, the provision and adequacy of such features as shade covers, awnings, and drapes should be noted.

Thermal Environment

The heating-cooling-ventilating equilibrium of space is a critical energy problem. Equipment operation efficiency needs to be assessed. Automatic controls are essential for efficient operation of equipment. Their availability and workability should be noted. Are there automatic time-switch controls which are available and responsive? Air-fuel adjustments that make for proper firing of equipment ought be analyzed. Steam pressures that are adequate but not beyond requirments should be checked. Fresh air intakes and power exhausts need to be inspected to ascertain if they are sufficiently controlled to not provide service that is in excess of need. Equipment ought be checked for operating efficiency (e.g., belt slippage, dirty filters, loose seals). A check should be made of thermostats to determine if they are available and appropriately located to provide thermal flexibility and control. The insulation of piping and air ducts for heating, ventilating, and cooling needs to be evaluated. The HVAC system (heating-ventilating-air conditioning) should be analyzed as to load, design, and control requirements to provide for general comfort with efficient utilization of energy.

Electrical Environment

There are many visual and power tasks with different requirements in operating vocational programs. The provision of electricity to meet visual demands becomes a part of the energy problem. The allowable electric power for handling levels of illumination and equipment operation (e.g., shop, heat) bear on the energy problem. Whether a building is double metered with a separate circuit for the exit lights and alarm systems which would eliminate the first meter demand and usage should be noted. Whether rooms and areas in a building are individually switched with multiple switches should be checked. Time clocks and photo cells to provide for lighting control should be noted. Rooms should be inspected to determine whether color designs are

appropriate to supplement lighting. It should be determined whether fluorescent lighting is used wherever it can be equally effective as incandescent lighting. If lights are positioned to control more by task than area should be noted. The foot-candle levels ought be analyzed so they are meeting minimum standards rather than exceeding maximum standards.

Service Systems

The services requirements for facilities also have energy demands which can be met either efficiently or inefficiently. Vocational facilities need electrical, gas, water, and compressed air services to meet program requirements. These services should be generated and delivered in a manner conducive to saving energy.

If the heating system needs to be operated so domestic hot water is available from the main boilers, there likely exists an inefficient operation as far as energy conservation is concerned. This condition should be investigated. Separate domestic hot water systems are typically more efficient. These systems should be checked to determine if automatic temperature controls are available, if insulation is adequate on the storage tanks and piping, and if pumps can be turned off when hot water is not needed. Conservation practices such as to not heat water beyond 110° F. and equipping fixtures with self-closing valves and other flow control devices should be checked. Whether hot water is being delivered where not required also ought be noted. Where excessively hot water is needed, it should be provided by a separate booster. This should be checked.

All service systems should perform well when needed and not operated unless needed. Master switches and automatic controls should be available to prevent inefficient operation of all services. It is necessary to find out if they are present. Installation of service systems should meet standards such that energy losses do not occur because of improper installation of units.

A leakage in the facility may result from improper installation of service equipment. Also there may be water and compressed air leaks. Although leaks from gas tend to be carefully checked, there could be gas operations that use gas unnecessarily. Such a condition should be noted when evaluating facilities.

Electric power is an important service to shops and labs in vocational facilities. Performance data on power equipment to determine efficiency levels of operation should be analyzed. Such things as full load, partial load, and standby conditions should be checked to determine if there is compliance with standard specifications. Electric equipment should be shut down when not in use. Is it? Power should not be expended unless it is serving a purpose.

SCHOOL BUILDING/SITE ASSESSMENT PACKET

The School Building/Site Assessment Packet is comprised of four basic parts. The first part is General Data about buildings and sites to be evaluated. The second part includes Inspection Forms which note rather specific data that are measurable and observable. Site Assessment is part three of the packet. Special site components are evaluated followed by over-all ratings by completing a form on Recapitulation of Site Assessment. Part four of the packet includes the Building Assessment of nine specific facility components followed by over-all ratings by completing a form on Recapitulation of Building Assessment.

Preliminary information that identifies and codes the data is recorded for the School Building/Site Assessment Packet. If the first two boxes are completed, the ID code for computer use can be completed.

General Data

Basic building and site information is recorded under General Data.

Under building information the gross area (sq. ft.) of the total complex should be noted. If an explanation is needed, this should be noted. For example, you may wish to note whether the area was determined from blue prints, actual measurement, or estimated by pacing distances. Under construction give the date of original construction and purpose (i.e., high school, shop annex). Give dates for any additions to the original structure and the purpose of each addition. Check the type of facility to be assessed and give the number of floors in the building.

Under site information, record the total acres in the site, check the general shape, and whether the site acres are or are not contiguous. The particular status of the site should be noted by a check on the appropriate blank. Indicate the number of buildings (e.g., 0, 1, 2, etc.) on the site

when the assessment was made.

Cost information should note the value in dollars of the site and the building. Then check whether the dollar value is actual (Act.) or estimated (Est.). Explain where appropriate to indicate how the value was established (e.g., prevailing price/acre x no. of acres, insured value of building).

INSPECTION FORM

Aspects of a facility must be examined carefully so that quantitative and empirical data can be reviewed and recorded. The Inspection Form(s) is/are used to provide selected detail of facility areas and spaces (e.g., classroom, laboratory, shop, office). Recording data that are objective (measurable) and empirical (observable) improve validity when assessing subjective features of facilities and when evaluating usability.

Identification Features

Station number refers to the method used to identify and locate a particular station. Usually the method used is a numbering system (1, 2, 3, 4, etc.). Often second floors start with a two (21, 22, 23). Some schools use a letter and number sequence with the letter identifying the location (A-1, A-2, etc.).

Number of student stations refers to the capacity of a room to accommodate a particular class or to seat certain numbers of people. In regular classrooms there perhaps are tables and chairs or arm desks which may seat a certain number (20 students, 30 students). A laboratory may have a set number of individual lab stations (e.g., Electronics Lab - 18 student stations). A shop usually is equipped to accommodate a set number of students (i.e., Auto Mechanics - 16 students).

Spatial Features

In spatial features, type means a description that suggests characteristics that identify a particular kind of space. Typical identities would be a classroom, a particular shop, a laboratory, an office, a central storage room, a locker room, and a computer center as well as others.

Size refers to area and dimensions. The area of a station represents the gross area in square feet. It does not include distinct and separate spaces such as a storage room. However, the area would include an alcove which is really a definite part of a station. The dimension of a station gives the width, length, and height in feet.

If a station has a separate storage area identified with it, the width and length are requested so the type and dimensions of space are more meaningful.

Construction Features

Construction features represent how parts are assembled and arranged in a structure and out of what materials. Floor treatments include such materials as hardened concrete, terrazzo, ceramic tile, rubber tile, vinyl tile, maple flooring, and carpeting. There are other floor treatments under trade names that provide rubberized-synthetic finishes. Wall treatments of rooms include such things as exposed block, painted plaster, natural brick, vinyl paper, carpeting, mosaic tile, or some combination of wall finishes. There are different movable panels of various finishes used as partitions between areas. Ceilings may be exposed or may be plastered and pairted. Then there are a variety of ceiling treatments using different tile and suspension arrangements. Very often the tile has acoustical qualities. The structural system broadly identified is framing and assemblies of several types such as load bearing, skeletal, or shell. The exterior walls range between water-repellent concrete block or clapboard siding to aluminum or pre-cut stone modules. A common exterior wall is brick face with interior block backing. There are a variety of "sandwich" panels and sheathing being used for exterior wall fabrication today that go by a number of trade names. The window area of a station and how far above floor level the windows are located are important in assessing natural lighting features and controls, heat loss

from a station, and flexibility of use of space in a station. Thus, recording the window area in sq. ft. and the height above floor in feet provides objective input to use in judging the visual and thermal components of a facility. Movement into and out of stations for students, vehicles, freight, and equipment requires adequate routes of ingress and egress. The dimensions of overhead doors (e.g., 14' x 14') and other interior-exterior doors provide information for assessment of traffic flow.

Electrical Features

Electric lights and power are important features of facilities. Illumination levels and controls are important to proper seeing and efficiency. Electric power is important to the operation of equipment, machines, and mechanical services. If lighting is incandescent and direct or indirect and if lighting is fluorescent and direct or indirect this is helpful information in assessing visual qualities. Knowing the number of switches by which lighting is controlled and regulated helps ascertain flexibility and efficiency of the illumination system. Finally, if the lighting scheme is task-area lighting arranged with low level brightness levels throughout the area as opposed to area lighting at high brightness levels, it is important, too, in assessing flexibility and efficiency.

Electric power is important to most program operations. For example, convenient outlets in classrooms, labs, and shops facilitate program operations. The number of wall outlets available, the height of these outlets from the floor, and the distance between outlets is usable information. The voltage of the outlets (e.g., 110 v.) also is requested. Machine outlets provide the power needed for operation of much instructional and non-instructional equipment. The number of machine outlets available in a station and whether the service to these outlets is from the ceiling or floor is recorded information needed in assessment. Again voltage to these outlets is requested (e.g., 110 v.,

220 v., variable voltage, 3-phase).

The number of outside outlets that serve a station is requested information on the inspection form. The availability of a master control box is asked for (yes or no) as is the availability of a panic button (yes or no).

Electronic Features

The availability of an intercommunication system should be noted by using the appropriate symbol. Use 1W to indicate one-way intercom and 2W to indicate two-way intercom. A zero (0) indicates no intercom. If telephone service is available in a station or convenient to a station (i.e., hallway by the station) this is to be indicated. Write "yes" or "no" on the appropriate blanks. Do likewise if there is a terminal for TV service in the station. Electronic sensors are of various types (e.g., sprinkler system, smoke sensor, security sensor). Write the type or types on the blank for each station where applicable. Use "none" to indicate the absence of any electronic sensor.

Mechanical Features

The heating, ventilating, and air conditioning features of a station are to be reported under HVAC systems. Energy sources indicate the type of fuel or power. It is to be noted whether it is electric, gas, oil, coal, or some combination. The type heat refers to the design of the mechanical equipment for conveying heat. The common types include forced hot air, steam or hot water, heat pumps, and resistance type electrical heat. The capacity to control the heat is regulated by individually controlled thermostats. Use "yes" to indicate station control and "no" to indicate some other arrangement (e.g., zone or suite). Similarly, indicate by "yes" or "no" the availability or non-availability of air conditioning.

The plumbing service includes the providing of water and the disposal of

water. The blank opposite water service should have one of four symbols: H - C -- hot and cold, H -- hot, C -- cold, and 0 (zero) indicating no water service in a station. Use "yes" or "no" to indicate availability or non-availability of drinking fountains, lavatories, floor drains, hose bibs, and outside water service for a particular station.

The gas service to a particular station is noted by "yes" indicating the service is available and "no" to indicate not available. The type service is noted by indicating bottled gas or natural gas. Put the number of gas outlets available in a station on the blank "No. gas outlets." If there is a master control for gas in the station write "yes," if not, write "no" on the blank.

The compressed air service to a particular station is noted by "yes" indicating availability or "no" indicating non-availability. The number of disconnect outlets in a station is placed on the blank (e.g., 1, 2, 6, etc.). If the air service is available by an outside disconnect outlet, indicate by "yes" and write "no" if the outside service is not available.

Health and Safety Features

Health features include personal care and conveniences and presence of clean and fresh air. Use "yes" for noting availability and "no" for non-availability of restrooms, lockers, drinking fountains, and hand-washing lavatory in or convenient to a station. If a station has the mechanical means available for dust-fume removal and special ventilation beyond normal station services indicate by "yes" and write "no" if these special means are not available.

Safety features indicate the availability and adequacy of design layouts and special equipment to improve safety in a station. Use "yes" if the layout or equipment is adequate or available. Use "no" if there are not fire extinguishers, sprinkler systems, exit markings, and an alarm system available and if clear traffic lanes and security are not adequate.

Barrier Free Features

Instructional stations and equipment should be appropriate so handicapped persons can be accommodated. The presence of special equipment (e.g., lavatory, telephone, drinking fountain, toilet stall) operable by handicapped persons should be noted by "yes" or "no." If the equipment is in working order indicate by "yes" and if not, place a "no" on the blank. If movement into or out of a station is not restrictive for the handicapped indicate this by "yes." This means doors should be sufficiently wide for persons in wheel chairs (at least 32" wide in the clear, operable by these persons, and sufficient room inside and outside the station for wheelchair turn arounds). Adequate H-V (horizontal-vertical) movement for the handicapped also should be noted. Gentle sloping ramps (1' in 12'), non-slip surfaces, firm handrails, curb cuts, and elevators are H-V movement features necessary for handicapped persons. Again, use "yes" or "no" to indicate adequacy or inadequacy, respectively.

Special Equipment Features

If there is a special feature that one wishes to measure or observe, it should be specified and then appropriately recorded on the blank for each station. For example, if one wishes to know if stations have electrostatic air purification units, this would be specified and indicated by marking "yes" or "no."

Other Feature(s)

If there is interest in observing some features of stations, these should be noted under "Other." It may be, for example, that you wish to note whether stations have expansion possibilities. You would specify "expandibility potential" and then indicate "yes" or "no" on the blanks.

SCHOOL SITE ASSESSMENT

The site is an integral part of an educational complex. It, of course, provides the areas and settings for buildings. In addition, it supports many other functions and services. The site may be an extension of classrooms, labs, and shops used for instructional purposes. It also may provide areas allocated for roads, walks, and lots to accommodate pedestrian and vehicular traffic movement and parking. Sites are used as school and community resources for recreation. Finally, a site may provide an open and aesthetic setting. Characteristics and features of site components are summarized to help clarify elements that are evaluated in application of the site assessment instrument.

Acceptability Component

A school site should be viewed favorably as a desirable location for educational facilities. It should "fit" the area. Site neutrality is a factor in judging its acceptability. Neutrality is important in communities comprised of definite neighborhoods. A reasonable level of community agreement about a particular location ought to be apparent. In determining acceptability, the potential for aesthetic satisfaction and visual comfort through natural features and good landscaping are important considerations. Site beautification potential is relevant to obtaining views both from the site and toward the site which are pleasant. The quality of the environment should be acceptable to whatever use the site is to be put.

Accessibility Component

It is important that a school site be located as conveniently as possible for the population to be served--for both pedestrian and vehicular traffic. Traffic should be able to flow efficiently, safely, and in a controlled pattern.

Routes of ingress and egress should provide for regulation of traffic which will avoid bottlenecks, confusion, and interference with on-site and off-site traffic flow. Traffic safety is an important consideration. In addition to being accessible to the various building and site users, the site should be convenient to public services and public utilities.

Suitability Component

Size and shape are important considerations because they give flexibility in site development. Building placements and orientations, outdoor instructional-recreational allocations, and service areas need to be accommodated on the site. Conflicts in use need to be avoided, and the school needs to be protected from unsightly surroundings and disturbing distractions. Suitability is influenced by land characteristics. Contour and layout of the site as related to such factors as drainage, elevation, and erosion do influence the degree of suitability of a site. The subsoil condition is important in regard to providing a good base for building.

Site Development Component

The school site should be adequate so it can appropriately accommodate the various uses to which it will be put. Site planning to arrive at user requirements is important. The site needs performance specifications just as does the school building. Site development that accommodates such features as building placement, grounds beautification, site surfaces, service areas, and site layouts is essential.

SCHOOL BUILDING ASSESSMENT

The system's approach to school facility assessment represents an attempt to evaluate a delivery system which recognizes, correlates, and arranges parts. The system components are those elements which interact in the production of a facility. The spatial, sonic, thermal, visual, hygienic, safety, traffic, equipment, and structural components are the essential factors that, it is hoped, combine to produce a harmoniously constructed facility that performs well. Each of these components is discussed briefly to help clarify the place of the component as it contributes to the complete facility.

Spatial Component

The spatial component includes the type of spaces needed and their association, accessibility, arrangement, and fit within a facility. An educational facility should be designed so that it functions as a single unit. Parts should be located in proper relation to each other so that building activities can be conducted efficiently, conveniently, and safely. Spaces housing similar or closely related instruction activities should be clustered together (i.e., vocational shops, labs, and classrooms). In contrast a machine shop should be separated from the library.

Spaces for learning should be suitable from the stand point of shape, size, atmosphere, and location. Shaping and sizing of instructional spaces should be suited to the functions they are designed to serve (e.g., ratio of 1' of width to 1.5' of length for shops) and the clientele to be accommodated (e.g., the handicapped). A certain degree of futurism and creativity are good prerequisites in planning educational spaces. Flexibility and adaptability of space are becoming watchwords. As educational methods and curricula change, financial factors may prohibit construction of new facilities;

so existing space will have to be adaptable.

Easy access and convenience of movement through a facility also are primary considerations for planning in the spatial dimension. Circulation patterns must allow students and equipment to flow rapidly within and among units in the facility.

Once the function and type of space is known and its association, suitability, size, and shape are identified, then other components which directly relate to the spatial one can be considered.

Sonic Component

The sonic component is concerned with the quality and reduction of sound and the control of noise. Problems of acoustics are affected by both the design and the location of a room. A significant portion of the instructional process depends upon good hearing conditions. Sound quality is a problem which can be solved largely by good acoustical treatment. Speech should be heard distinctly without effort. Sound reduction and sound control are problems that can plague poorly designed vocational facilities. Sound control relates to the problem of air-borne (within classrooms and lecture stations) and structure-borne (from machinery, pipes, ventilation, and water systems) noise. Sound reduction relates to the problem of creating a condition that falls within the noise tolerance levels through the suppression and isolation of noise (transmission loss).

Good hearing conditions depend on adding sufficient sound-absorption materials to obtain the optimum reverberation time as it relates to function. Reverberation time depends on the volume of space and the purpose of the space. Good hearing conditions also depend on retaining some sound reflective properties of the ceiling in order to improve the transmission of sound from one end of the room to the other. Acoustical treatment is generally most effective if placed where large surfaces intersect at angles of less than 180 degrees.

Control of noise interference originating from outside a room can be achieved by selecting a site away from unwanted sounds, suppressing the noise at the source, isolating the noise physically, isolating the noise acoustically, and/or by designing partitions with proper sound transmission loss. Air-borne sound can be contained by nonporous partitions while structure-borne noise may need to be controlled by acoustical discontinuities within the structural design of the facility. Typical noise control problems include disturbances from adjacent activities, mechanical equipment, lighting hum, air registers, outside traffic, leaking partitions, cracks, ductwork, and vibration in the structure and pipes.

Generally acoustics is affected by the use of space, its size and shape, its relationship to other spaces, its location within the institution, and its proximity to noise producting objects on or adjacent to the institution site.

Thermal Component

The thermal environment involves examination of those mechanical aspects of a facility having to do with heating, ventilation, cooling, and humidity equilibrium. It should be designed to provide a comfortable, healthy, and efficient setting for accommodating people using the facility. The thermal system should provide flexibility in regulation and respond to change to achieve adequate climate control. Air temperature demands of spaces vary with use. A classroom where activities tend to be sedentary requires heat ranges from 65° to 70° F. whereas a shop where there is considerable movement may require temperatures of 60° to 65° F. Storage areas and the like may not require heat beyond 55° F. Relative humidity strongly influences comfort (in normal situations a relative humidity of about 60 percent is quite acceptable). Ventilation in facilities is important for comfort and health. Forced ventilation ought permit adequate air exchanges to remove body odors and obnoxious odors generally. Cooling also may be important in certain areas for efficient performance. In other areas it may be an unneeded luxury. Efficient thermal operation must

take into account the problem of depleting energy supplies and rising energy costs.

There are facility features other than the HVAC system that are important to the thermal environment. There are design features and construction materials that influence thermal conditions. The number and location of windows may aid in ventilation and also will be an important consideration in heat loss. The color scheme of a facility exterior and the quality and extent of insulation ought be such as to imporve thermal conditions. Zone control of the thermal environment is important too for economy by permitting certain areas to be used independently of other areas.

Visual Component

Conditions that allow adequate visibility to be provided to meet task demands is important in communication and performance. The visual environment involves artificial and natural lighting, brightness differences, reflection characteristics, and visual control. The visual objective is to provide efficient, glare-free light on tasks while maintaining a fairly low level of lighting in areas surrounding the tasks. It does not follow that increasing light intensity (foot-candles) necessarily improves seeing and the quality of light. Quality of light is a product of light intensities and reflection factors of colors. Switches, rheostats, and timers should provide the means for light adjustment and control. Lighting and color requirements vary with location, function, and use of space. Thus, capacity to regulate lighting is important.

In addition to providing quality seeing conditions, coloring and lighting should increase orderliness, reduce maintenance, and improve safety and security. Good coloring complemented by lighting helps create cheerfulness, dignity, and purpose for spaces within a facility. Efficiency of lighting systems is important to energy conservation. Finally, colors and lights can help reduce physical tensio conserve human energy, and increase work efficiency in facilities.

Hygienic Component

Convenient, comfortable, and healthy conditions are products of careful planning. In the broad sense a healthy environment is created when lighting and coloring, HVAC control, noise and sound control, quality of sound, and style and type of equipment are appropriately balanced to create a comfortable setting. And, further, where personal care conviences such as restrooms, lockers, drinking fountains, and storage shelving and cabinets are adequately available, the healthfulness of the environment is improved. Finally, a healthful environment is one that has plans, space, and equipment for handling, perhaps on a temporary basis, persons who are ill or injured. Restrooms should be attractive, clean, well ventilated, properly equipped (including handicapped), and constructed of impervious materials. Lavatories, whether the open shop or restroom type, should be designed for sanitation and economy. Whether foot-operated, hand-operated, or both, handicapped persons should be able to operate the the lavatory equipment. Delayed-closing spigots will improve economy. Drinking fountains should be readily accessible. Contamination is minimized when mouths do not come in contact with the orifices. Nozzle heights and arrangements should be such that handicapped persons can use the bubblers. Drain systems should flow immediately into sanitary sewer systems. Sewage disposal systems that don't operate well can create serious health hazards. The water source should provide clear water free from nitrogenous or undesirable mineral content and harmful bacteria. Physical facilities that provide conditions which are hygienic for the occupants and users is an important feature of a facility.

Safety Component

Safety consciousness is a must for both instructors and students: maintaining a safety attitude is difficult in unsafe facilities. Efficient material flow betwee storage through work stations to use improves safety. Panic buttons to kill power in emergencies should be appropriately located in stations. Grounded wiring for bot

heavy and light equipment is desirable as are magnetic switches which automatically turn off machines when a break occurs in a circuit. Sprinkler systems and appropriately located fire extinguishers, fire blankets, and emergency showers are good safety features. Combustible and other hazardous materials should be stored in fire proof containers and storage areas that are clearly marked. There should be ample security of these areas. Electronic sensors are excellent warning devices. Explosion-proof switches and fixtures should be used where needed (e.g., finishing rooms). Dust collection systems and special exhaust systems ought be installed in labs and shops where needed. Filtered air is also a requirement in certain instructional stations. Master control switches and valves are safety features that permit maximum instructor control of such things as power sources and gas furnaces. Floors should be of non-skid materials and fire-retardant materials (e.g., curtains for welding) and safety glass (e.g., plexiglas) should be used to minimize accidents and improve safety. Markings that call attention to safety considerations and person, vehicle, and equipment movement improve safety conditions. The aim should be to create an educational setting that is reasonably safe for even the careless person.

Traffic Flow Component

Movement of people, equipment, and vehicles is important because it affects efficiency and safety. Good traffic flow is important to smooth operations. Corridors should be wide enough to accommodate traffic with a minimum of congestion. Width depends on the people load at peak times of movement. Primary corridors that pick up traffic loads should be wider than secondary corridors that handle less traffic. Corridors should be free of obstructions and projections. Doors should not project into the corridors. If corridors, as may be the case in certain shop areas, handle both vehicular and pedestrian traffic, they should be safety marked. Corridors should terminate at an exit or a

stairway that leads to an exit.

Stairways should be at least two lanes in width. (44" between handrails). Firm handrails should be provided (26" to 30" above nosing). Usually 16 risers per run is a maximum number. Stair risers should be about 6.5" with a minimum nosing on the stair treads. Uniformity in risers height is essential. Stair wells should be safety designed particularly for purposes of egress during emergencies. In multi-story buildings where vertical movement of freight, heavy equipment, and handicapped persons is necessary, elevators are desirable.

When ramps are used to change levels as part of the circulation systems, they should be of gentle slope (i.e., ramp's slope of 1' in 12'). Non-slip surfaces are highly important on ramps. It is important too to provide firm handrails where ramps are long.

Door access and clearance are important considerations too. A minimum door clearance should be 32 inches. Important too is whether access to doors is such that persons handling materials or in wheel chairs can conveniently open and pass through a door. Doors should be sized to handle the traffic necessary for program operations and accommodating clientele. If doors open to the outside of a building they should be appropriately marked.

The aim of traffic flow and circulation is to permit independent, rapid, and safe movement of all people and material necessary in operating an activity or program.

Equipment Component

Equipment is usually identified as fixed or movable. Fixed equipment represents the type furnishings, installations, and stationary stock which is considered a permanent part of a facility (e.g., power service, drainage systems, electronic terminals). Movable equipment represents the type furnishings, installations, and unstationary stock that is not considered a permanent part of

the facility (e.g., wood lathe, sewing machine, window drapes). Desirable features for fixed equipment are being summarized for this component.

The electric power systems should provide good flexibility, desirable power capacities, and dependable and controllable sources. Installation of medium high voltage distribution systems with step-down transformers to provide for flexibility in meeting varying electric power requirements usually is a desirable feature. Power panels should be installed to provide sufficient numbers of separate circuits.

The source, quality, and quantity of water and the type disposal systems are important to many instructional operations and janitorial services in facilities. When ample water that is filtered, conditioned and/or treated as needed is available and accessible, water service meets the test of adequacy. Water faucets, valves, and hose-bibbs should be appropriately located and operable if water service is to be efficient. The sewage service which disposes of waste water, chemical wastes, and solid wastes is important. Appropriate and adequate sewage lines, by-pass catch basins, sand traps, and grease traps should dispose of sewage and waste in a sanitary and rapid way.

Compressed air service is essential to vocational programs in several areas (e.g., automotive shops, health careers). A system that provides from 60-150 lbs. pressure per square inch usually is sufficient. The unit should be centrally located so it is reasonably isolated but protected from the elements. Compressed air should be filtered and regulated. An adequate number of disconnect outlets should be conveniently placed. The compressed air service is dependable when the air pressure is available on call with the pressure as needed. There should be access to master valve to control air service.

The variety of gas services required in vocational programs are many. (e.g., gas fired kilns, acetylene and oxygen for welding, gas operated appliances, lab gas outlets, heat treatment, forging). The location, storage, hood ventilation, and master control and regulation are all critical aspects of gas installations.

Unit control valves as well as a master control valve for gas service is important. Gas storage should provide a ventilated space away from heat sources. The service is dependable when it supplies the gas needed at the time needed.

Fixed installations that provide the means of taking advantage for the use of a variety of electronic devices is becoming increasingly important in the design of facilities. Service conduits and terminals for telephones, intercoms, and clocks are important to various stations. Similarly there should be distribution systems installed for AV, TV, computer connections where appropriate. Adequacy is judged on the basis of whether there is access to general and emergency communication and, in addition, to use the various electronic aids that are important for instructional improvement.

Structural Component

The structural component of a facility represents framing systems and assemblies, external envelopes, internal treatments, and type construction materials. Structural support systems should provide durability, rigidity, and shock-proofness to the framing (roof, wall, floor, and foundation support). The product of an adequate support system should be a solid, lasting framework which can withstand heavy winds, slight shifting, minor explosions, and fire without premature collapsing and deterioration. The external envelope should provide at least four conditions to be adequate. It should, of course, provide a distinctive and pleasing appearance. But also it should have adequate fire ratings, good insulating qualities, and low maintenance requirements. Similarly, internal treatment of floor, walls, and ceilings should meet adequate technical requirements and functional qualities. Technically, internal treatments should be solid with limited vibration, highly incombustible, soil and damage retardant, wear resistant, and air-tight. Functionally internal treatments should possess good acoustical qualities, minimize sound transmission, improve lighting, provide partition flexibility, fit need (i.e., floor finishes),

and exhibit aesthetic qualities. Construction materials ought provide ease of maintenance and repairability and durability of external and internal features. The structural design and construction materials should provide adequate load bearing capacities, allowances for contraction-expansion, appropriate insulating qualities, adequate wear and weather proofness, good fire ratings, and simple change and repair capabilities. The design intent is to provide a structurally sound facility that presents a pleasing view.

PROCEDURES TO FOLLOW

Once persons or groups have developed adequate familiarity with standards, regulations, guidelines, and programs in vocational education, they are prepared to administer the School Building/Site Assessment Packet to a facility or to use the packet in planning specifications for a vocational facility.

General Data and Inspection Form

The first activity in the assessment is to record the information requested on the first page of the packet. This sheet provides identification and general information data. It is important to be accurate as possible in gathering the identity, building, site, and cost data. These data are relevant as bench mark information in planning. Be certain to explain wherever clarification is needed (e.g., gross square feet of a facility, cost values). No ratings are requested on the first sheet. The information is simply a record of what is at a particular time.

The Inspection Form by-and-large calls for data that can be quantified and measured or clearly observed. Thus, no ratings are included on this form. Most important is correct identification and accurate recording. You may use several or more sets of inspection forms per facility. There are only five stations that can be checked per form. Thus, if assessments are to be made of several programs that have multiple stations in a suite (e.g., Vocational Home Economics, Health Careers, Vocational Agriculture), it will be necessary to use a number of inspection forms.

Site Assessment and Building Assessment Ratings

The site assessment calls for rating of 41 items on a four point scale. Items 1 - 28 assess four site features (acceptability, accessibility, suitability, and development). Items 28 - 41 provide a recapitulation of site assessment which

culminates in an over-all rating of site features (item 40) and site improvement (item 41). The building assessment calls for rating 69 items on a four point scale. Items 42 — 90 assess nine building components (spatial, sonic, thermal, visual, hygienic, safety, traffic-flow, equipment, and structural). Items 91 - 110 provide a recapitualtion of building assessment which culminates in an over-all rating of construction features (item 109) and education features (item 110).

For the items 1 - 27 and 42 - 90 that are to be rated, are several sub-items under each item. These sub-items provide ratings on specific details that will help one derive the rating for a particular item. For the recapitulation items 28 - 41 and 91 - 110 there are sub-items calling for ratings that collectively assess the site and building.

The scale for the site and building ratings uses four choices (1, 2, 3, and 4):

1 - Good. This rating means better than adequate. The condition or status of a thing more than meets normal expectations.

2 - Average. This rating meets the test of adequacy. The condition or status of a thing meets normal expectations.

3 - Poor. This rating does not meet the test of adequacy. The condition or status of a thing falls below what would be a normal expectation.

4 - Can't judge or doesn't apply. This rating indicates either that there is no way to assess an item or that the item to be assessed is not applicable.

The scale for the site and building recapitulation assessment uses a five item rating scale (HS = 1; S+ = 2; S = 3; S- = 4; and US = 5):

1 - HS (highly satisfactory). This rating indicates excellence. The feature is outstanding.

2 - S+ (satisfactory plus). This rating indicates a feature is good. The feature is more than adequate.

3 - S (satisfactory). This rating indicates a feature is average. The feature is adequate.

4 - S- (satisfactory minus). This rating indicates a feature is somewhat below average. The feature is somewhat inadequate.

5 - US (unsatisfactory). This rating indicates a feature is well below average or very sub-standard. The feature is highly inadequate.

SCHOOL BUILDING/SITE ASSESSMENT PACKET

EXHIBIT _____

School Institution: _____

Building/Site: _____

Location: _____

_____

Bldg./Site Use: _____

_____

Student Levels: _____

Total No. Students: _____

ID Code: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
Institution Bldg./Site No. County Region

_____

GENERAL DATA

BUILDING INFORMATION

Building Area (sq. ft.) _____

Explain: _____

Construction:	Date	Purpose
Original	_____	_____
Addition(s)	_____	_____
	_____	_____
	_____	_____

Type Facility (check one)

Area Vocational School ..... _____

Comprehensive High School ..... _____

Other (specify) ..... _____

Number of Floors

Below Ground ..... _____

Above Ground ..... _____

Total Number ..... _____

SITE INFORMATION

Site size (acres) _____

Shape of site: square _____;

rectangular _____; irregular _____

Acres contiguous: Yes ____; No ____

Site Status (check one)

Being considered ..... _____

Owned (being used) ..... _____

Owned (not being used) ..... _____

No. Bldgs. on Site ..... _____

COST INFORMATION

Site value _____ Act___; Est___

Bldg. value _____ Act___; Est___

Explain _____

_____

COMMENTS:

by: _____

date: _____

INSPECTION FORM

EXHIBIT _____

Program Area _____

Institution _____

Identification					
Station Number					
Number Student Stations					
Spatial Features					
Type (Clrm, Lab, Shop)					
Size (area)					
Width					
Length					
Height					
Storage (w x l)					
Construction Features					
Treatments (interior)					
Floor					
Wall					
Ceiling					
Structural System					
Framing					
Wall					
Doors					
Overhead (w x h)					
Exterior (w x h)					
Interior (w x h)					
Windows					
Window area					
Height off floor					
Electrical Features					
Lighting					
Type fixtures					
Number switches					
Light scheme					
Power					
Wall outlets					
No. outlets					
Height/space	/	/	/	/	/
Voltage(s)					
Machine outlets					
No. outlets					
Service (clng./flr.)					
Voltage(s)					
No. outside outlets					
Master control					
Panic button					
Electronic Features					
Intercom (1w, 2w, o)					
Telephone service					
TV service					
Electronic sensors					

Mechanical Features

HVAC systems

- Energy source(s) .....
- Type heat system .....
- Station regulation of HV ...
- Air conditioned .....

Plumbing service

- Water service .....
- Drinking fountain .....
- Lavatory .....
- Floor drain(s) .....
- Hose bibs .....
- Outside water service .....

Gas Service

- Availability .....
- Type service .....
- No. gas outlets .....
- Master control .....

Compressed air service

- Availability .....
- No. disconnect outlets .....
- Outside air service .....

Health and Safety Features

Health

- Convenient restrooms .....
- Lockers available .....
- Convenient drinking fountain
- Convenient hand washing ....
- Dust-fume removal .....
- Special ventilation .....

Safety

- Fire ext. available .....
- Sprinkler system .....
- Exit markings .....
- Alarm system .....
- Clear traffic lanes .....
- Good security .....

Barrier Free Features

- Special equipment .....
- Equipment operability .....
- Adequate entrances-exits .....
- Adequate H-V movement .....

Special Equipment Features

- Specify _____ ...
- Specify _____ ...
- Specify _____ ...

Other Feature(s)

- Specify _____ ...
- _____ ...

by: _____

date: _____

SITE ASSESSMENT Institution _____

EXHIBIT _____ _____

ACCEPTABILITY

1 2 3 4 ..... 1. **Compatability with others in area**
- 1 2 3 4 ..... Business/industry compatibility
- 1 2 3 4 ..... Residential compatibility
- 1 2 3 4 ..... Services compatibility

1 2 3 4 ..... 2. **Conditions of site surroundings**
- 1 2 3 4 ..... Risk free/safe place
- 1 2 3 4 ..... Security provisions
- 1 2 3 4 ..... Zoning law protection

1 2 3 4 ..... 3. **Traffic flow tolerability**
- 1 2 3 4 ..... Traffic disruption tolerability
- 1 2 3 4 ..... Traffic noise tolerability
- 1 2 3 4 ..... Traffic congestion tolerability

1 2 3 4 ..... 4. **Hazard freeness of surrounding areas**
- 1 2 3 4 ..... Pedestrian traffic routes
- 1 2 3 4 ..... Traffic crossing controls
- 1 2 3 4 ..... Route safety to area

1 2 3 4 ..... 5. **Sub-group identiy with area**
- 1 2 3 4 ..... Age groups
- 1 2 3 4 ..... Socio-economic groups
- 1 2 3 4 ..... Racial groups

1 2 3 4 ..... 6. **Neighborhood desirability**
- 1 2 3 4 ..... Commercial-industrial fit
- 1 2 3 4 ..... Rural-farm area fit
- 1 2 3 4 ..... Residential area fit

1 2 3 4 ..... 7. **Environmental Quality of Area**
- 1 2 3 4 ..... Dust-dirt freeness
- 1 2 3 4 ..... Fume-odor freeness
- 1 2 3 4 ..... Noise tolerability

ACCESSIBILITY

1 2 3 4 ..... 8. **Convenience to public services**
- 1 2 3 4 ..... Fire services
- 1 2 3 4 ..... Police services
- 1 2 3 4 ..... Transportation services

1 2 3 4 ..... 9. **Convenience to public utilities**
- 1 2 3 4 ..... Electricity
- 1 2 3 4 ..... Gas
- 1 2 3 4 ..... Water and sewer

1 2 3 4 ..... 10. **Barrier freeness of site approaches for handicapped**
- 1 2 3 4 ..... Common level-gentle slope walks
- 1 2 3 4 ..... Clear vision traffic lanes
- 1 2 3 4 ..... Non-slip surfaces

_____

RATING SCALE 1 - Good 2 - Average
3 - Poor 4 - Cannot judge or doesn't apply

1 2 3 4 ..... 11. Convenience to users of facility
- 1 2 3 4 ..... Persons who walk
- 1 2 3 4 ..... Persons who are transported pub
- 1 2 3 4 ..... Persons who commute privately

1 2 3 4 ..... 12. Approach to the site
- 1 2 3 4 ..... Roads to site
- 1 2 3 4 ..... Walks to site
- 1 2 3 4 ..... Bike lanes to site

1 2 3 4 ..... 13. Site entry-exit efficiency
- 1 2 3 4 ..... Entry-exit convenience
- 1 2 3 4 ..... Entry-exit controls
- 1 2 3 4 ..... Entry-exit safety

SUITABILITY

1 2 3 4 ..... 14. Desirability of site contour
- 1 2 3 4 ..... Elevation
- 1 2 3 4 ..... Surface drainage
- 1 2 3 4 ..... Erosion controllability

1 2 3 4 ..... 15. Adequacy of soil structure
- 1 2 3 4 ..... Porous sub-soil
- 1 2 3 4 ..... Soil base
- 1 2 3 4 ..... Ease of surface adaptation

1 2 3 4 ..... 16. Potential for site adaptation and preparation
- 1 2 3 4 ..... w/o extensive fill and cutting
- 1 2 3 4 ..... w/o extensive drain pits and sh
- 1 2 3 4 ..... w/o extensive retaining walls

1 2 3 4 ..... 17. Impact of site to area
- 1 2 3 4 ..... Site aesthetics
- 1 2 3 4 ..... Seclusion of unsightly places
- 1 2 3 4 ..... Potential for landscaping

1 2 3 4 ..... 18. Dimension-layout acceptability
- 1 2 3 4 ..... Size in acres
- 1 2 3 4 ..... Shape of width to length
- 1 2 3 4 ..... Space utilization potential

DEVELOPMENT

1 2 3 4 ..... 19. Building placement(s) on site
- 1 2 3 4 ..... Building orientation(s)
- 1 2 3 4 ..... Buildings placed back from str
- 1 2 3 4 ..... Feasibility for site arrangment

1 2 3 4 ..... 20. Status of landscaping
- 1 2 3 4 ..... Building-site appearance
- 1 2 3 4 ..... Plantings-vegetation condition
- 1 2 3 4 ..... Grounds care condition

RATING SCALE 1 - Good 2 - Average 3 - Poor 4 - Cannot judge or doesn't apply

1 2 3 4 ..... 21. Site surfaces planning

1 2 3 4 ..... All-weather surfacing
1 2 3 4 ..... Turf areas
1 2 3 4 ..... Apparatus areas

1 2 3 4 ..... 22. Vehicular traffic drives

1 2 3 4 ..... Double lane drives with turn a
1 2 3 4 ..... Clear vision w/o circling buil
1 2 3 4 ..... Building service drives

1 2 3 4 ..... 23. Status of parking areas

1 2 3 4 ..... Lot(s)-spaces available
1 2 3 4 ..... Accessibility to building entr
1 2 3 4 ..... Space width adequacy (handicap

1 2 3 4 ..... 24. Pedestrian traffic walks

1 2 3 4 ..... Width of walks
1 2 3 4 ..... Common level on gentle ramps o
1 2 3 4 ..... Non-slip surfaces & railings if

1 2 3 4 ..... 25. Vehicle disembarking and facility entry ramps

1 2 3 4 ..... On-site bus stops
1 2 3 4 ..... Level platforms/unloading dock
1 2 3 4 ..... Disembarking/unloading conveni

1 2 3 4 ..... 26. Site safety-security

1 2 3 4 ..... Lighting adequacy
1 2 3 4 ..... Traffic controls and markings
1 2 3 4 ..... Suitable fences and storage

1 2 3 4 ..... 27. Site layout and allocations

1 2 3 4 ..... Instructional area allocations
1 2 3 4 ..... Play-court-athletic allocation
1 2 3 4 ..... Use of areas w/o conflict

RATING SCALE 1 - Good 2 - Average 3 - Poor 4 - Cannot judge or doesn't apply

EXHIBIT _____

Recapitulation of Site Assessment

COMPONENTS		RATING SCALE				
		HS	S+	S	S-	U
Acceptability	28-Location for a school site	1	2	3	4	5
	29-Health, safety, and security	1	2	3	4	5
	30-Compatibility with area	1	2	3	4	5
Accessibility	31-Convenience to users	1	2	3	4	5
	32-Convenience to services & utilities .	1	2	3	4	5
	33-Traffic patterns and flow	1	2	3	4	5
Suitability	34-Site size and shape	1	2	3	4	5
	35-Terrain and topography	1	2	3	4	5
	36-Distinctive planning possibilities .	1	2	3	4	5
Development	37-Site surfaces and landscaping	1	2	3	4	5
	38-Drives, walks, and parking	1	2	3	4	5
	39-Layout and allocations.	1	2	3	4	5
	40-Site features overall adequacy. . . .	1	2	3	4	5
Specifications						
	41-Site improvement overall adequacy . .	1	2	3	4	5

RATING SCALE
- HS - Highly Satisfactory (1)
- S+ - Satisfactory plus (2)
- S - Satisfactory (3)
- S- - Satisfactory minus (4)
- US - Unsatisfactory (5)

BUILDING ASSESSMENT

Institution _____

EXHIBIT _____

SPATIAL COMPONENT

1 2 3 4 ..... 42. Availability of appropriate unit areas
- 1 2 3 4 ..... Association among units
- 1 2 3 4 ..... Design of spaces for special use
- 1 2 3 4 ..... Adaptability/modifiability of spaces

1 2 3 4 ..... 43. Adequacy of unit sizes
- 1 2 3 4 ..... Size to shape of spaces
- 1 2 3 4 ..... Unobstructed heights of spaces
- 1 2 3 4 ..... Instructional to non-instructional a

1 2 3 4 ..... 44. Accessibility to related areas
- 1 2 3 4 ..... Convenience to personal care areas
- 1 2 3 4 ..... Convenience to instructional centers
- 1 2 3 4 ..... Convenience to service areas

1 2 3 4 ..... 45. Movement and natural fit of spaces
- 1 2 3 4 ..... Movement within areas
- 1 2 3 4 ..... Movement of equipment and materials
- 1 2 3 4 ..... Indoor-outdoor arrangements

SONIC COMPONENT

1 2 3 4 ..... 46. Adequacy of sound-conditioning features
- 1 2 3 4 ..... Building envelope treatments
- 1 2 3 4 ..... Special acoustical treatments
- 1 2 3 4 ..... Unwanted sound restrictions

1 2 3 4 ..... 47. Quality of hearing environment
- 1 2 3 4 ..... Wanted sounds clearly heard
- 1 2 3 4 ..... Tolerability levels of sound transmi
- 1 2 3 4 ..... Adequacy of sound cushioning and muf

1 2 3 4 ..... 48. Adequacy of sound control
- 1 2 3 4 ..... Isolation of noise producing activit
- 1 2 3 4 ..... Air borne noise tolerability
- 1 2 3 4 ..... Structure borne noise tolerability

THERMAL COMPONENT

1 2 3 4 ..... 49. Thermal adequacy based on need
- 1 2 3 4 ..... Heat sufficiency
- 1 2 3 4 ..... Ventilation sufficiency
- 1 2 3 4 ..... Cooling sufficiency

1 2 3 4 ..... 50. Regulation for climate control
- 1 2 3 4 ..... Ability to change to heat demand
- 1 2 3 4 ..... System zoning for partial use
- 1 2 3 4 ..... Response of system to outside condit

RATING SCALE

1 - Good
2 - Average
3 - Poor
4 - Cannot judge or doesn't ap

1 2 3 4 ..... 51. Structural-thermal efficiency
1 2 3 4 ..... Design support for thermal efficiency
1 2 3 4 ..... Equipment support for thermal efficie
1 2 3 4 ..... Low conductance and high resistance

VISUAL COMPONENT

1 2 3 4 ..... 52. Adequacy of illumination for visual comfort
1 2 3 4 ..... Brightness level
1 2 3 4 ..... Ceiling-wall-floor reflection values
1 2 3 4 ..... Task control of illumination
1 2 3 4 ..... 53. Adjustment-regulation for visual control
1 2 3 4 ..... Availability of multiple control swit
1 2 3 4 ..... Provision of rheostats where needed
1 2 3 4 ..... Regulation of natural light

1 2 3 4 ..... 54. Flexible and economical light system
1 2 3 4 ..... Low brightness of large areas by lumi
1 2 3 4 ..... Lighting responsiveness to space chan
1 2 3 4 ..... Energy efficiency of illumination

HYGIENIC COMPONENT

1 2 3 4 ..... 55. Personal care and conveniences for facility users
1 2 3 4 ..... Restrooms conveniently accessible
1 2 3 4 ..... Restroom availability for both sexes
1 2 3 4 ..... Restroom provisions for handicapped

1 2 3 4 ..... 56. Design of lavatory-toilet facilities
1 2 3 4 ..... Clean and sanitary (w/o odor)
1 2 3 4 ..... Use of impervious materials
1 2 3 4 ..... Entrance-exit shielding

1 2 3 4 ..... 57. Availability of special hand washing facilities
1 2 3 4 ..... Number of open hand washing facilitie
1 2 3 4 ..... Placement of open lavatories
1 2 3 4 ..... Operable by handicapped

1 2 3 4 ..... 58. Availability of lockers and shelves
1 2 3 4 ..... Space for personal item storage
1 2 3 4 ..... Lockers for special clothing storage
1 2 3 4 ..... Location/ventilation of lockers

SAFETY COMPONENTS

1 2 3 4 ..... 59. Precautions for hazards from fumes
1 2 3 4 ..... Noxious materials storage
1 2 3 4 ..... Hood and shield protection devices
1 2 3 4 ..... Devices to handle dangerous materials

1 2 3 4 ..... 60. Special hazard minimizing equipment
1 2 3 4 ..... Explosion proof electrical fixtures
1 2 3 4 ..... Special exhaust fans
1 2 3 4 ..... Electronic sensors

RATING SCALE 1 - Good 2 - Average 3 - Poor 4 - Cannot judge or doesn't apply

1 2 3 4 ..... 61. Safe movement of people in facility
- 1 2 3 4 ..... Clear traffic lanes (w/o projections)
- 1 2 3 4 ..... Traffic lanes lead to foyers and exits
- 1 2 3 4 ..... V-H traffic flow for handicapped

1 2 3 4 ..... 62. Adequacy of fire safety conditions
- 1 2 3 4 ..... Controls for combustible gases
- 1 2 3 4 ..... Adequacy of number/types of circuits
- 1 2 3 4 ..... Storage-disposal of combustibles

1 2 3 4 ..... 63. Physical shape of facility for safety
- 1 2 3 4 ..... Structural soundness for safety
- 1 2 3 4 ..... Secure-shock proof connections
- 1 2 3 4 ..... Working condition of operable parts

1 2 3 4 ..... 64. Adequacy of safety control equipment
- 1 2 3 4 ..... Emergency and fire doors
- 1 2 3 4 ..... Location and marking of extinguishers
- 1 2 3 4 ..... Adequacy of emergency lighting

TRAFFIC FLOW COMPONENT

1 2 3 4 ..... 65. Efficiency of traffic flow in corridors
- 1 2 3 4 ..... Traffic handling w/o congestion
- 1 2 3 4 ..... Corridors clearly distinguishable
- 1 2 3 4 ..... Corridor size for traffic load

1 2 3 4 ..... 66. Personnel-equipment movement in corridors
- 1 2 3 4 ..... Clear of obstructions and projections
- 1 2 3 4 ..... Non-slip treatment of floors
- 1 2 3 4 ..... Accommodate movement of handicapped

1 2 3 4 ..... 67. Personnel-equipment movement to different levels
- 1 2 3 4 ..... Handling 2-way traffic on stairs
- 1 2 3 4 ..... Ramps have gentle slope
- 1 2 3 4 ..... Elevators for equipment and handicappe

1 2 3 4 ..... 68. Adequacy of stair-well features
- 1 2 3 4 ..... Availability of firm handrails
- 1 2 3 4 ..... Non-skid surfaces of stairs
- 1 2 3 4 ..... Nosing-height features of stairs

1 2 3 4 ..... 69. Design of vertical movement features
- 1 2 3 4 ..... Location of stairs to exits
- 1 2 3 4 ..... Intermittent platforms for stairs
- 1 2 3 4 ..... Control-safety design of stair wells

1 2 3 4 ..... 70. Efficiency of ingress-egress from facility
- 1 2 3 4 ..... Exit unit width of doors
- 1 2 3 4 ..... Ease of opening doors
- 1 2 3 4 ..... Door closure operation

1 2 3 4 ..... 71. Adequacy of door features
- 1 2 3 4 ..... One-level exit platforms
- 1 2 3 4 ..... Operation of anti-panic hardware
- 1 2 3 4 ..... Day-night markings of exits

RATING SCALE

1 - Good 2 - Average
3 - Poor 4 - Cannot judge or doesn't app

1 2 3 4 ..... 72. Efficiency of internal traffic movement
1 2 3 4 ..... Traffic changes and dispersals
1 2 3 4 ..... Movement within suites and among areas
1 2 3 4 ..... Movement of equipment and freight

1 2 3 4 ..... 73. Efficiency of external traffic movement
1 2 3 4 ..... Location of exits for traffic flow
1 2 3 4 ..... Crowd movement out of facility
1 2 3 4 ..... Dispersals from parking areas

EQUIPMENT COMPONENT

1 2 3 4 ..... 74. Adequacy of electrical service for task demands
1 2 3 4 ..... Meeting power requirements
1 2 3 4 ..... Accessibility of power source to equipme
1 2 3 4 ..... Dependability/controllability of power

1 2 3 4 ..... 75. Adequacy of gas service for task demands
1 2 3 4 ..... Meeting gas requirements
1 2 3 4 ..... Accessibility of gas outlets
1 2 3 4 ..... Dependability/controllability of gas ser

1 2 3 4 ..... 76. Adequacy of compressed air for task demands
1 2 3 4 ..... Meeting air requirements
1 2 3 4 ..... Accessibility of dis-connect outlets
1 2 3 4 ..... Dependability/controllability of air ser

1 2 3 4 ..... 77. Adequacy of water service to meet task demands
1 2 3 4 ..... Meeting quality-quantity requirements
1 2 3 4 ..... Availability of service equipment
1 2 3 4 ..... Dependability/controllability of water serv

1 2 3 4 ..... 78. Adequacy of electronic installations for task demands
1 2 3 4 ..... Conduit for communication terminals
1 2 3 4 ..... AV/TV/computer connections/distributions
1 2 3 4 ..... Terminals for clocks/intercoms/telephone

1 2 3 4 ..... 79. Adequacy of special equipment needs
1 2 3 4 ..... Special exhaust systems
1 2 3 4 ..... Filtered-humidity controlled air
1 2 3 4 ..... Special drainage systems

STUCTURAL COMPONENT

1 2 3 4 ..... 80. Adequacy/durability of structural support system
1 2 3 4 ..... Weight support/load bearing capacity
1 2 3 4 ..... Minimal contraction-expansion problems
1 2 3 4 ..... Spanning provides partition flexibility

1 2 3 4 ..... 81. Adequacy of external wall treatments
1 2 3 4 ..... Rigid, safe, and wear resistant
1 2 3 4 ..... Control of thermal conductance
1 2 3 4 ..... Efficiency for maintenance

RATING SCALE 1 - Good 2 - Average 3 - Poor 4 - Cannot judge or doesn't apply

51

1 2 3 4 ..... 82. Adequacy of internal wall technical qualities

- 1 2 3 4 ..... Partitions tight w/o vibrations
- 1 2 3 4 ..... Tolerability of noise transfer
- 1 2 3 4 ..... Facing and fire-rating quality

1 2 3 4 ..... 83. Adequacy of interior wall functional qualities

- 1 2 3 4 ..... Reflections complement lighting
- 1 2 3 4 ..... Acoustical properties
- 1 2 3 4 ..... Aesthetics of finishes

1 2 3 4 ..... 84. Adequacy of ceiling technical qualities

- 1 2 3 4 ..... Strength of suspension w/o air leakage
- 1 2 3 4 ..... Shape support of acoustics
- 1 2 3 4 ..... Ease of repair and maintenance

1 2 3 4 ..... 85. Adequacy of ceiling functional qualities

- 1 2 3 4 ..... Reflective quality supports lighting
- 1 2 3 4 ..... Absorbent quality supports hearing
- 1 2 3 4 ..... Aesthetic quality

1 2 3 4 ..... 86. Adequacy of technical floor treatments

- 1 2 3 4 ..... Treatment varies by use
- 1 2 3 4 ..... Wear qualities
- 1 2 3 4 ..... Appropriateness of resiliency

1 2 3 4 ..... 87. Adequacy of functional floor treatments

- 1 2 3 4 ..... Appearance
- 1 2 3 4 ..... Acoustical quality
- 1 2 3 4 ..... Reflective features

1 2 3 4 ..... 88. Adequacy of roof and roof deck

- 1 2 3 4 ..... Waterproofness of roofing system
- 1 2 3 4 ..... Handling of roof load
- 1 2 3 4 ..... Span, fire-rating, insulating qualities

1 2 3 4 ..... 89. Adequacy of foundation support system

- 1 2 3 4 ..... Durability
- 1 2 3 4 ..... Waterproofness
- 1 2 3 4 ..... Appropriateness of insulation

1 2 3 4 ..... 90. Adequacy of structural envelope

- 1 2 3 4 ..... Fire, wear, weather, and sound properti
- 1 2 3 4 ..... Design, shape, appearance, and material
- 1 2 3 4 ..... Appropriateness of doors and windows

RATING SCALE

1 - Good
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EXHIBIT _____

Recapitulation of Building Assessment

COMPONENTS		RATING SCALE				
		HS	S+	S	S-	US
Spatial	91- Unit stations and layout	1	2	3	4	5
	92- Unit sizes (l x w x h)	1	2	3	4	5
Sonic	93- Quality of sound	1	2	3	4	5
	94- Noise control	1	2	3	4	5
Thermal	95- Climate control (HVAC)	1	2	3	4	5
	96- Energy sources and efficiency	1	2	3	4	5
Visual	97- Lighting adequacy/controllability	1	2	3	4	5
	98- Visual flexibility/efficiency	1	2	3	4	5
Hygienic	99- Personal care convenience	1	2	3	4	5
	100- Design features support for health	1	2	3	4	5
Safety	101- Hazard controls (fumes, fire, explosion) ...	1	2	3	4	5
	102- Structural-equipment conditions for safety ..	1	2	3	4	5
Traffic-flow	103- Internal movement (H/V people/equipment)	1	2	3	4	5
	104- External movement (people/vehicular)	1	2	3	4	5
Equipment	105- Public Utilities and Services	1	2	3	4	5
	106- Special equipment installations	1	2	3	4	5
Structural	107- Durability of structural envelope	1	2	3	4	5
	108- Design treatments	1	2	3	4	5
Specifications	109- Construction features overall adequacy	1	2	3	4	5
	110- Education features overall adequacy	1	2	3	4	5

RATING SCALE

HS - Highly Satisfactory (1)
S+ - Satisfactory plus (2)
S - Satisfactory (3)
S- - Satisfactory minus (4)
US - Unsatisfactory (5)